

NATURAL RESOURCES CONSERVATION SERVICE
CONSERVATION PRACTICE STANDARD

FOREST SITE PREPARATION (ACRE)

CODE 490

DEFINITION

Treating areas to improve site conditions for establishing a forest.

PURPOSES

- Encourage natural regeneration of desirable woody plants.
- Permit artificial establishment of woody plants.
- To conserve soil and water resources.
- To enhance watershed, wildlife, recreation and esthetic values of the area.
- Release seedlings from competing vegetation.

CONDITIONS WHERE PRACTICE APPLIES

- On all lands where establishment of woody plants is desired **but current site conditions are not favorable**.
- The site conditions are suited to growing woody plants.
- The establishment of natural or planted seedlings would be impaired by existing vegetation or thick forest litter;
- Existing vegetation is expected to fully occupy the site within 3 years following harvest.
- Woody debris prevents access for planting.
- In areas adequately stocked but competing vegetation inhibits further stand development of young plants.

CRITERIA

General Criteria Applicable to All Purposes

The method, intensity and timing of site preparation will match the limitations of the site, equipment, and the requirements of the desired woody species.

An appropriate site preparation method will be chosen to protect any desirable vegetation.

Remaining slash and debris shall not create habitat for or harbor harmful levels of pests.

Remaining slash and debris shall not hinder needed equipment operations or create an undue fire hazard.

Erosion and/or runoff will be controlled.

Soil compaction and displacement will be minimized. **This is of special concern when using heavy equipment.**

All chemicals will be applied in accordance with label guidelines.

Comply with applicable federal, state and local laws and regulations during the installation, operation and maintenance of this practice.

Plant only on soils capable of supporting woody plants. Avoid all very shallow soils, very saline or alkali soils, and wet soils.

Restrict livestock and wildlife from the area or protect seedlings until reproduction is well established. This may be required for 3 to 8 years depending on establishment growth of desired species.

NRCS, MT
August 2001

Conservation practice standards are reviewed periodically and updated if needed. To obtain the current version of this standard contact the Natural Resources Conservation Service.

NOTE: This type of font (**AaBbCcDdEe 123..**) indicates NRCS National Standards.
This type of font (**AaBbCcDdEe 123..**) indicates Montana Supplement.

Only treat areas where competing vegetation and/or excessive logging slash or woody debris restricts plant establishment and early growth. Site preparation treatment should benefit seedling establishment and growth at least 3 years.

Refer to Field Office Technical Guide (FOTG), Section II, Forestland Interpretations and Section II, Rangeland, Grazed Forestland, Native Pasture Interpretations—Western and Eastern Grazing Guides for anticipated vegetative competition and help in selecting an appropriate method.

Forest site preparation is performed utilizing one or a combination of the following methods:

1. Mechanical method – usually done either with heavy equipment or by hand. Refer also to FOTG, Section IV, Practice Standard 314—Brush Management.
 - A) Heavy equipment—a bulldozer with a brush rake or a skidder with toothed bucket during slash piling following logging. Scarify the site so that about 30–40 percent of the area has exposed bare mineral soil to a depth of about 4 inches. Not suited to steep sites (>40% slopes) or sites dominated by rhizomatous shrubs.
 - B) Hand Scalping—a hand tool that scrapes/scalps the soil surface at the time of planting. Scalped area is a minimum of 3 feet in diameter. Remove all vegetation and roots to a 3-inch depth. Most suited to sites with less aggressive vegetation.
2. Chemical method – competing vegetation must be controlled for plant establishment or existing plant release. Can be applied either by broadcast application (aerial or ground) or spot application. Spot treatments should kill vegetation in a 4 feet diameter area. Select the appropriate herbicide based on the vegetation to be controlled. Follow label instructions. Refer to FOTG, Section IV, Practice Standard 595—Pest Management. Run WINPST for environmental hazards. Use broadcast treatments for extensive brush fields or rhizomatous grass. Use spot treatment for less aggressive vegetation.
3. Prescribed burning method – used where high volumes of slash and woody debris prevents access or are an obstacle to stand establishment. Burning is also used to reduce thick litter layers to expose the soil and to control tall brush that is competing or hindering stand establishment. Not used on mostly grassy sites but suited to steep sites where mechanical method is not suited. Remove enough debris to ensure 30–40 percent of surface is suitable as a planting site for plant establishment. Competing vegetation is set back at least 50 percent of original density and does not impede plant establishment for 3 years. Refer to FOTG, Section IV, Practice Standard 338—Prescribed Burning. Wildfires may present a window of opportunity for forest habitat establishment.

Additional Criteria for Natural Regeneration

For successful natural regeneration wait for a good seed year before preparing the site. In August observe seed trees for mature cones. An average of 200 cones per tree constitutes a good seed year. Forest site preparation for natural regeneration is performed immediately after harvest and before September 15th when seed fall begins. In a mixed stand tailor site preparation to the favored species.

Species requiring site disturbance (bare mineral soil seedbeds) for natural regeneration:

- Ponderosa pine (*Pinus ponderosa*)
- Douglas-fir (*Pseudotsuga menziesii*)
- Lodgepole pine (*Pinus contorta*)
- Western larch (*Larix occidentalis*)
- Western white pine (*Pinus monticola*)
- Whitebark pine (*Pinus albicaulis*)

Note that Douglas fir sites require a light disturbance only (less than 30 percent).

Additional Criteria for Artificial Regeneration

Identify the forest habitat types that occupy the site. Select species suited for that forest habitat type and capable of establishing at that site. Refer to FOTG, Section II, Forestland Interpretations for suitable species. Select planting stock of an origin nearest the site to be planted.

Additional Criteria for Releasing Partially Established Stands

Brush or grass competition following seedling establishment may prevent continued establishment. Mechanical and chemical site preparation methods are suited to these situations, not prescribed burning. Limit treatment to stands less than 20 years old and where competition from other vegetation is readily apparent. Do not treat stands where competition is from overstocking.

CONSIDERATIONS

The site preparation method should be cost effective and protect cultural resources, wildlife habitat, threatened and endangered species, water resources, and identified unique areas.

A combination of treatments may be needed to meet plant establishment needs.

Soil limitations for seedling mortality, plant competition, and other forest management interpretations will be considered when choosing a site preparation method and its timing.

Visual quality objectives should also be considered when selecting site preparation methods.

Anticipate possible off-site effects and modify the site preparation design accordingly. Maintain an adequate buffer from areas that may be negatively impacted by the site preparation method. Follow

the guidelines of Montana's Streamside Management Zone law when working in/around wetlands and riparian areas.

Consider personnel safety during site preparation activities.

PLANS AND SPECIFICATIONS

Plans will address the method, intensity, and timing of site preparation, species, and protection required for desirable woody plants.

Specifications for applying this practice and protection of the site shall be prepared and recorded using approved specification sheets, job sheets, technical notes, and narrative statements in the conservation plan or other acceptable documentation.

OPERATION AND MAINTENANCE

Repair erosion control measures as necessary to ensure proper function. Access by vehicles during site preparation or after (i.e., before adequate tree and shrub establishment occurs) should be controlled to minimize erosion, compaction and other site impacts.

Control weeds invading areas disturbed during site preparation.

Site preparation treatments may need to be re-applied if competing vegetation returns before desired plants are adequately established.

490-4

NO INFORMATION

NATURAL RESOURCES CONSERVATION SERVICE
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MONTANA CONSERVATION PRACTICE SPECIFICATION / JOB SHEET

DEFINITION: Treating areas to improve site conditions for establishing a forest.

SCOPE: This practice applies on the following conditions:

- On all lands where establishment of woody plants is desired but current site conditions are not desirable.
- The site conditions are suited to growing woody plants.
- The establishment of natural or planted seedlings would be impaired by existing vegetation or thick excess forest litter;
- Debris prevents access for planting.
- In areas with adequate stocking of young plants but undesirable vegetation inhibits further stand development.
- Existing vegetation is expected to fully occupy the site within 3 years following harvest.

FOREST SITE PREPARATION METHODS:

- Forest site preparation is performed utilizing one or a combination of the following methods:
 1. Mechanical Method
 - Heavy Equipment
 - Hand Scalping
 2. Chemical Method
 - Broadcast
 - Spot
 3. Prescribed Burning Method

OPERATION AND MAINTENANCE:

- Repair erosion control measures on access roads.
- Control weeds invading areas disturbed during site preparation and plant establishment.
- Reapply site preparation if competing vegetation returns before desired plants are adequately established.

Specification MT490-2

NO INFORMATION

FOREST SITE PREPARATION—Specification Sheet

LANDOWNER

FIELD NUMBER

PURPOSE (CHECK ALL THAT APPLY)

- ☐ To encourage natural regeneration of desirable woody plants
- ☐ To permit artificial establishment of woody plants
- ☐ To conserve soil and water resources
- ☐ To enhance watershed, wildlife, recreation and esthetic values of the area
- ☐ To release existing seedlings

FOREST SITE CONDITIONS

Soil: _____ Slope: _____

Forest Habitat Type: _____ Size of Site: _____

Insect and/or Disease Concerns: _____

Site Limitations: (CHECK ALL THAT APPLY)

- ☐ Wet areas ☐ Rocky, shallow soils
- ☐ Forest litter (DEPTH _____) ☐ Competing vegetation: LIST _____
- ☐ Woody debris ☐ Offsite concerns: _____
- ☐ Forest Canopy: _____% ☐ Equipment limitations: DUE TO: _____

Regeneration: (SELECT ONE)

- ☐ Natural ☐ Planted (See 612—Tree/Shrub Establishment)
- > Favored Overstory Species: _____ > Desired Species: _____

FOREST SITE PREPARATION METHODS (CHECK ALL THAT APPLY)

- ☐ Mechanical Method
- ☐ Heavy Equipment Equipment Type: _____
- ☐ Hand Scalping Timing: _____
- ☐ Other _____

Chemical Method

Type: _____

- ☐ Granular RATE: _____

- ☐ Liquid

Timing: _____

WINPST Hazard Rating _____

Method:

- ☐ Broadcast
- ☐ Ground
- ☐ Aerial
- ☐ Spot

- ☐ Prescribed Burning Method (See 338—Prescribed Burning)

Specification MT490-4

PLANNED SITE CONDITIONS AFTER TREATMENT

- ☐ 30–40% scarification ☐ Other: _____
- ☐ 3–4 feet spot size
- ☐ 3–4 inches depth of scarification

JOB SKETCH

Attached Plan Map ☐ YES ☐ NO (IDENTIFY SENSITIVE AREAS)

ATTACHED SPECIFICATIONS

314–Brush Management	<input type="checkbox"/> YES	<input type="checkbox"/> NO
338–Prescribed Burning	<input type="checkbox"/> YES	<input type="checkbox"/> NO
595–Pest Management	<input type="checkbox"/> YES	<input type="checkbox"/> NO
612–Tree/Shrub Establishment	<input type="checkbox"/> YES	<input type="checkbox"/> NO

ADDITIONAL NOTES

APPROVALS:

NRCS Conservationist

Job Class

Date

Producer

Date

INSTALLATION CHECK:

NRCS Conservationist

Date